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Nephrectomy, with Case.

By REUBEN PETERSON, M. D.

presented by the author



ABDOMINAL NEPHRECTOMY, WITH CASE.

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Operations for the removal of a kidney are not of such frequent occurrence as to inhibit reports of single cases; for this reason I have thought the following might be of interest:

Miss A. C——, American, aged 22 years; single; house-maid. Family history negative, except that she thinks her father died of some kidney trouble. When eight years of age she fell and sustained an injury to the right side which kept her in bed for two weeks; since then she has always had more or less pain in that side, usually dull (but occasionally so severe as to confine her to bed). As she grew older the pain became more severe and more disabling. She first noticed blood in her urine at the age of nine, and this appearance was of almost daily occurrence thereafter until her eighteenth year, since which time it has been observed only during attacks of pain. About two years ago she had quite a severe seizure in the right side, accompanied by a cessation of menstruation; Doctor Murphy, of Chicago, diagnosed the trouble as cystic disease of the kidney, from a lump situated just at the border of the right ribs. (The patient had noticed this tumor for six years.) Some fluid was drawn off, and an operation advised. After this she was laid up for some time with severe pain and fever. Next she went to St. Joseph's



Hospital, where she was under the care of Doctor Senn, but he could find no evidences of cystic kidney. Then Doctor Henrotin was consulted, who made a vaginal examination and found a cyst of the right ovary, which he removed by *cœliotomy*; she made a good recovery from the operation, but the pain in the right side still continued, and was so severe in character as to prevent her from working. At times the urine contained considerable blood.

Examination, made September 26th, 1894, gave no evidences of cystic kidney, but there was some tenderness in the right vaginal fornix which was considered to be due to the stump of the excised right tube and ovary; accordingly she was sent to the Butterworth Hospital, and there treated locally with ichthyol tampons for over two months, during which period the urine showed no evidences of any kidney trouble, the amount passed being about normal. She gained in flesh and strength, color and appetite improved, but the pain in the right side still persisted. After consultation with Doctor Eugene Boise it was decided to make an exploratory *cœliotomy* for the purpose of ascertaining the cause of the suffering—the question of possible chronic appendicitis was considered, as the pain was located in the region of the appendix. It was suspected there was either trouble with the kidney or the appendix, or adhesions from the previous *cœliotomy*.

Assisted by Doctor Boise, I operated December 3d. An incision was made three inches in length in the right linear semilunaris over the region of the appendix,

which was found to be perfectly normal. The stump of the excised right tube and ovary was next examined, and nothing abnormal was found in connection therewith; no ligature was present. A systematic examination of the entire abdominal contents was then made, which resulted in the discovery, beneath the peritoneum and in the region of the right kidney, of a fluctuating tumor. The left kidney was palpated and found to be apparently normal. The peritoneum was cut through over the centre of the tumor until a blue, glistening cyst-wall was disclosed. The tumor was then carefully dissected from its bed, which proved to be a most difficult and delicate task because of the thin wall and the density of adhesions. The kidney was finally cleared in all directions, except the pedicle made up of the ureter and renal vessels. The ureter was isolated and cut midway between the silk ligatures which were applied. One large silk ligature was placed around both artery and vein. Forceps were then placed close to the kidney, and the mass removed. The stump was dropped and the peritoneum allowed to settle over it, no stitches being used. The abdomen was not irrigated, but little hæmorrhage having taken place. No drainage was used. The parietal peritoneum was sutured with catgut, the fascia with interrupted silkworm-gut sutures, and the muscles with catgut. Catgut was also used for the skin. The patient suffered very little from shock, the operation lasting a little over an hour. She made an uninterrupted recovery. The stitches were removed on the ninth day, and the wound was found to have healed by first intention.

The patient is now free from pain and able to do light work. The urine was examined carefully after the operation. About the normal amount was passed in the twenty-four hours, showing that one kidney was able to do all the work.*

Regarding the diagnosis of cystic disease

**Pathological Report by Doctor J. B. Whinery.—*
The kidney, at the time of removal had become changed into a fluctuating, lobulated kidney-shaped tumor. The length was six inches, breadth four inches, weight one pound; surface smooth, and no evidences of inflammatory action. On palpation, calculi ranging in size from a grain of sand to a pea or a little larger could be detected scattered through different parts of the tumor. On making an incision into the mass, twelve ounces of brownish-colored liquid escaped, which, however, was not subjected to chemical or microscopical examination because the tumor had been in preserving fluid for some time and more or less osmosis had taken place. Most of the kidney structure had disappeared, and there remained only pouches separated from each other by septa of fibrous tissue, in which free calculi were found, about two dozen in all, some of a dark clay-colored appearance, others dark brown; a thin crust of crystals covered a few of the calculi. Firmly imbedded in the mouth of the ureter was a dark-brown calculus the size of a hazelnut, completely occluding the lumen and preventing the passage of urine. Of the kidney structure, only a small portion, varying in thickness from a mere shell to three-quarters of an inch, was left. Microscopical examination of this remaining kidney structure revealed atrophy and a functionless condition of the secretory elements.

of the kidney by means of the cystoscope and the use of ureteral catheters: Only since Howard Kelly's work on the bladder and accessories has it been practicable to make use of catheterization of the ureters as a means of diagnosis of disease of the kidney. By means of Kelly's instruments both ureters may easily be catheterized and the excretion from each kidney carefully examined; great additional aid to diagnosis is thus obtained. In the case just considered, there is no question but that passage of a catheter into the right ureter would have shown that no fluid was coming from the corresponding kidney. The amount of fluid excreted from each kidney can be determined, and thus the surgeon can decide as to the advisability of the removal of one when the other is slightly diseased; in short, the diagnosis of surgical disease of the kidney has been placed on a scientific basis, and much more accurate and successful work may be confidently looked for in the future.

The advantages of abdominal over lumbar nephrectomy for such cases as the one reported, are evident. Had the incision been made in the loin, it is doubtful if the dense adhesions could have been separated—certainly not without rupture of the cyst wall, thus materially complicating the operation. With the abdominal incision the field of operation is brought plainly into view and the work of enucleation may be carried on both

by sight and touch; and the shock attendant upon opening is offset by the greater rapidity with which the kidney can be removed. Lumbar nephrectomy, even though the peritoneal cavity be not opened, is attended usually by great shock, because of the necessary strain to which the renal vessels are subjected in bringing them into position for ligation—the operator is almost invariably at a disadvantage, no matter how extensive the incision may be. Mynter relates of a recent case that his arm was buried nearly to the elbow in attempts at enucleation. One can thus readily understand the dangers attending the ligation of the renal vessels. One of the chief causes of secondary hæmorrhage is ligation of vessels while on the stretch, and the slipping of the ligature usually proves rapidly fatal—a difficulty that is avoided when ligation is through the abdomen. Again, dissecting-room experience teaches that anomalies in the way of blood-supply to the kidney are by no means uncommon, and these can be seen and provided for better by the abdominal route; the latter method also enables one to carefully palpate the sound kidney before removing the diseased one: for it has happened that a kidney has been removed and the post-mortem revealed the fact that, although diseased, it was the only renal organ present. The possibility of such accidents should be continually borne in mind and carefully guarded against.

Shall the cut edges of the posterior peritoneum covering the tumor be sutured? If the kidney be in its proper position, removal will leave a large hollow into which the edges of the peritoneum drop in such a way that union readily takes place; the raw surfaces left after peeling out the kidney (which is usually adherent) are covered by the peritoneum, and thus the abdominal cavity is shut off from the retroperitoneal space. And yet, while sutures can be dispensed with in some instances and no unfavorable symptoms supervene, in other cases if there is no great amount of shock and the peritoneum not too redundant I would certainly unite the peritoneal edges by a running catgut stitch, feeling that by so doing I had left the peritoneum in a more favorable position for speedy union than by any other method.

Drainage, as a rule, should be employed only when absolutely necessary. As applied to nephrectomy it differs from other abdominal cases in the fact that the retroperitoneal space may be drained through the loin, while the abdominal cavity can at the same time be closed without drainage; and this would seem to be the most satisfactory method to employ. Gauze is in the main preferable to rubber tubing, owing to the tendency of the latter to collapse and thus prove worthless.

In disposing of the ureter, two ligatures should be applied and severance made between them; stitching the end of the ureter

into the abdominal wound, as is the custom of some, is totally unnecessary. If the contents of the ureter are believed to be septic, the end should be cauterized; otherwise it is simply dropped after ligation and excision.

I have wondered whether the history of the injury to the right side in the case just reported could have had any influence in the production of the calculi and the subsequent development of the hydronephrosis; certainly a blow may produce a blood clot within the kidney, from which a calculus can subsequently develop.

The history of paroxysms of pain, and of hæmorrhages from the bladder, would lead to the conclusion that these were induced by frequent passages of calculi along the ureter, and that finally one larger than the rest lodged in the mouth of the ureter, when hydronephrosis resulted.

In conclusion let me say that this case has taught me a valuable lesson: it is, to place more credence in the patient's statement in regard to pain, and if it be located in the abdomen, and the position be constant, to make an exploratory incision to clear up the diagnosis.

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